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From the Berlin meridian observation of July 5, and two positions obtained at Mr. Bishop's Observatory on July 10 and 14, Mr. Hind has calculated the following orbit:—

Epoch of Mean Anomaly, 1847, July 0, G. M.T. 283° 56′ 54″

Longitude of Perihelion	8° 17′ 24″	M. Eq. July 0
Ascending Node	137 25 35	
Inclination	15 2 56	
Excentricity.........................	0·238910	
Mean Diurnal Motion	886″·0778	
Sidereal Period	4·004 years.	

Ephemeris for 0^h *G. M. T.*

	True R. A. h m s	True Decl. ° ′ ″	Log Δ.
July 18	16 59 6·3	− 5 35 39	0·2140
21	16 57 42·7	− 5 59 22	0·2183
24	16 56 33·9	− 6 23 58	0·2229
27	16 55 40·5	− 6 49 20	0·2279
30	16 55 2·7	− 7 15 22	0·2331

Observations of NEPTUNE.

CAMBRIDGE. (Professor Challis.)

		Greenwich M.T. h m s	R.A. h m s	N.P.D. ° ′ ″
1847.	May 26	14 58 36	22 10 36·72	101 52 33·5
	June 1	14 5 4	22 10 39·86	101 52 27·0
	19	13 3 16	22 10 22·84	101 54 34·3
	July 13	13 24 46	22 9 3·46	102 2 34·4

On May 26 the planet was compared three times with B.A.C. 7740, and twice with star $22^h\ 15^m\ 11^s$ in Bessel's Zones 127 and 129: on June 1, it was compared five times with the former star, and four times with the latter. The places of the stars are taken respectively from the B.A. Catalogue, and from Bessel's Zones.

On June 19 the planet was compared twice with each of the two stars used in the former observations, using the same mean places. On July 13 the star of comparison was H.C. 43446, which is the same as that taken from Bessel's Zones 127 and 129. The assumed mean place from both authorities on Jan. 1, 1847, is R.A. $22^h\ 8^m\ 35^s{\cdot}03$, N.P.D. 102° 24′ 5″·7.

Extract of a Letter from Mr. Adams.

"I enclose the ephemeris of *Neptune* for every ten days. I am engaged in a new determination of the orbit of *Neptune* from the perturbations of *Uranus*, starting with a more correct value of the mean distance than that previously employed. At present, I have only obtained a first approximation, having neglected the eccentricity of the orbit of the disturbing body, and used the modern observations alone. The longitude of *Neptune* thus found for October 6, 1846, exceeds the true longitude by 2° 25′ only.

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"The mass of *Neptune* comes out, as might be expected, much less than that given by the former investigation. It now appears to be about $\frac{1}{23000}$ of that of the sun. In consequence of the near commensurability of the mean motions of *Uranus* and *Neptune*, their mutual perturbations, when fully developed, will greatly exceed any others which occur in the system of the primary planets.

"The largest term in the perturbations of *Uranus* by *Neptune* has a coefficient of about 1° 44′, while its period is about 6800 years, or nearly 81 times the period of *Uranus*. In consequence of its immense period, this term, notwithstanding the magnitude of its coefficient, produces scarcely any sensible effect on the longitude of *Neptune* determined from the perturbations."

Ephemeris of NEPTUNE *for Greenwich Mean Midnight.*

By Mr. Adams.

Date.	R. A.			N. P. D.			Date.	R. A.			N. P. D.		
1847.	h	m	s	°	′	″	1847.	h	m	s	°	′	″
July 15	22	8	54·86	102	3	23·0	Aug. 9	22	6	38·51	102	16	24·5
16			50·19		3	50·2	10			32·42		16	58·8
17			45·45		4	17·9	11			26·30		17	33·4
18			40·62		4	45·9	12			20·16		18	8·0
19			35·72		5	14·4	13			13·97		18	42·7
20			30·74		5	43·2	14			7·78		19	17·5
21			25·69		6	12·5	15		6	1·56		19	52·4
22			20·58		6	42·1	16		5	55·33		20	27·3
23			15·39		7	12·0	17			49·09		21	2·0
24			10·13		7	42·3	18			42·83		21	37·0
25		8	4·80		8	12·9	19			36·56		22	12·0
26		7	59·43		8	43·9	20			30·29		22	47·4
27			53·98		9	15·2	21			24·01		23	22·4
28			48·47		9	46·7	22			17·73		23	57·4
29			42·91		10	18·6	23			11·45		24	32·4
30			37·29		10	50·7	24		5	5·16		25	7·4
31			31·62		11	23·1	25		4	58·88		25	42·2
Aug. 1			25·90		11	55·8	26			52·62		26	17·0
2			20·13		12	28·7	27			46·35		26	51·8
3			14·32		13	1·8	28			40·10		27	26·4
4			8·44		13	35·1	29			33·87		28	0·9
5		7	2·53		14	8·6	30			27·64		28	35·3
6		6	56·58		14	42·3	31			21·44		29	9·6
7			50·59		15	16·2	Sept. 1			15·26		29	43·7
8	22	6	44·57	102	15	50·3	2	22	4	9·09	102	30	17·7

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